SHARP SERVICE MANUAL

No. S6844QTCD111H

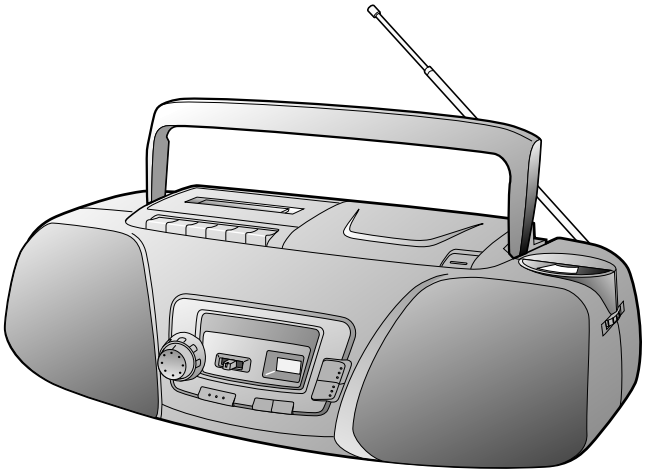

Illustration: QT-CD111H

COMPACT disc DIGITAL AUDIO

QT-CD111H
QT-CD110H

QT-CD110H is different from QT-CD111H in Control Panel color.

- In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified should be used.

- **Note for users in UK**
  Recording and playback of any material may require consent which SHARP is unable to give. Please refer particularly to the provisions of Copyright Act 1956, the Dramatic and Musical Performers Protection Act 1956, the Performers Protection Acts 1963 and 1972 and to any subsequent statutory enactments and orders.

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SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

SAFETY PRECATION FOR SERVICE MANUAL

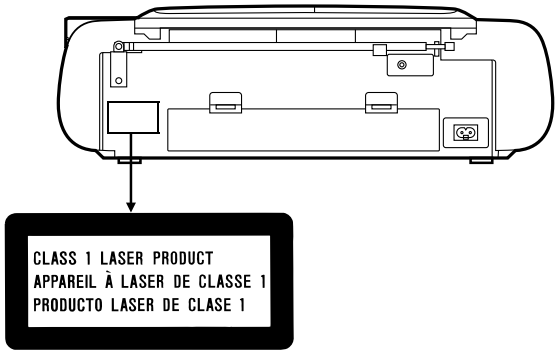
Precaution to be taken when replacing and servicing the Laser Pickup.

The ael (ACCESSIBLE EMMISSION LEVEL) of the laser power output is less than class 1 but the laser component is capable of emitting radiation exceeding the limit for class 1. Therefore it is important that the following precautions are observer during servicing to protect your eyes against exposure to the laser beam.

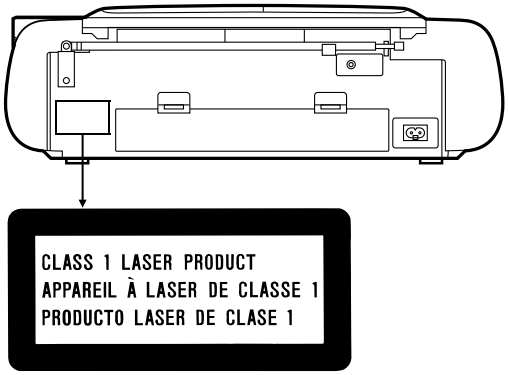
(1) When the cabinet is removed, the power is turned on without a compact disc in position and the pick-up is on the outer edge the laser will light for several seconds to detect a disc. Do not look into the pick-up lens.
(2) The laser power output of the pick-up unit and replacement service parts are all factory pre-set before shipment.

Do not attempt to re-adjust the laser pick-up unit during replacement or servicing.
(3) Under no circumstances stare into the pick-up lens at any time.
(4) CAUTION-USE of controls or adjustments, or pereformance of procedures other than those specified herein may result in hazardous radiation exposure.

(111H For UK)



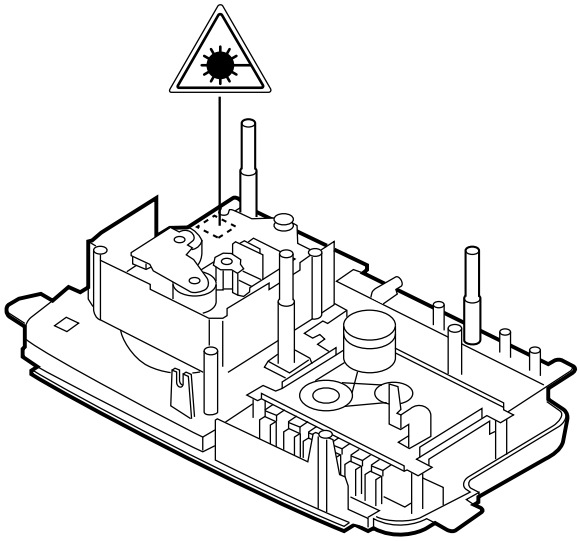
(111H Except for UK/110H)

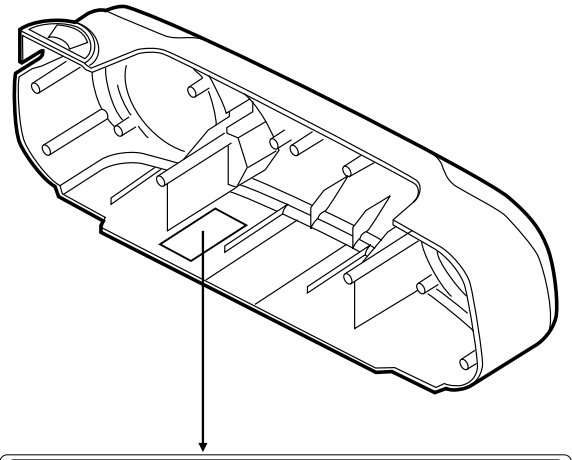


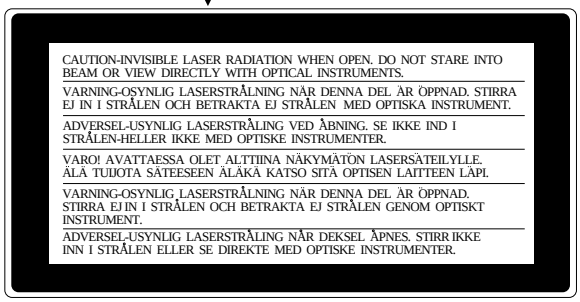
LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

LASER TŘÍDY 1
LASER TRIEDY 1

Laser Diode Properties
Material: GaAlAs
Wavelength: 780 nm
Emission Duration: continuous
Laser Output: max. 0.6 mW






CAUTION-INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.
VARNING-OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STIRRA EJ IN I STRÅLEN OCH BETRAKTA EJ STRÅLEN MED OPTISKA INSTRUMENT.
ADVERSEL-USYNLIG LASERSTRÅLING VED ÅBNING. SE IKKE IND I STRÅLEN-HELLER IKKE MED OPTISKE INSTRUMENTER.
VARO! AVATTAESSA OLET ALTTIINA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ TUIJOTA SÄTEESEEN ÄLÄKÄ KATSO SITÄ OPTISEN LAITTEEN LÄPI.
VARNING-OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STIRRA EJ IN I STRÅLEN OCH BETRAKTA EJ STRÅLEN GENOM OPTISKT INSTRUMENT.
ADVERSEL-USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN ELLER SE DIREKTE MED OPTISKE INSTRUMENTER.

VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

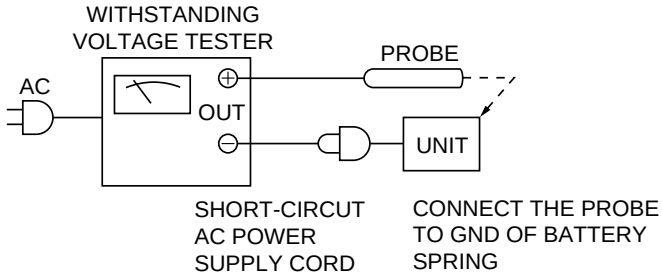
VARNING - OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERAS. KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

IMPORTANT SERVICE NOTES (111H FOR UK ONLY)

Before returning the unit to the customer after completion of a repair or adjustment it is necessary for the following withstand voltage test to be applied to ensure the unit is safe for the customer to use.
Setting of Withstanding Voltage Tester and set.

Set name	Set value
Withstanding Voltage Tester	
Test voltage	4,240 VPEAK 3,000 VRMS
Set time	6 secs
Set current (Cutoff current)	4 mA
Unit	
Judgment	
OK: The “GOOD” lamp lights. NG: The “NG” lamp lights and the buzzor sounds.	



SPECIFICATIONS

● General

Power source: AC 230 - 240V, 50 Hz
DC 12 V ["D" size (UM/SUM-1, R20 or HP-2) battery x 8]
Power consumption: 11 W
Output power: PMPO; 28 W
(111H Except for UK/110H) MPO; 8.4 W (4.2 W + 4.2 W) (AC operation, DIN 45 324)
RMS; 4.6 W (2.3 W + 2.3 W) (DC operation, DIN 45 324)
Output power: MPO (Max.); 8.4 W (4.2 W + 4.2 W) (AC operation)
(111H For UK) RMS; 4.6 W (2.3 W + 2.3 W) (DC operation, 10 % T.H.D.)
Speakers: 10 cm (4") full-range speaker x 2
Output terminal: Headphones; 16-50 ohms (recommended; 32 ohms)
Dimensions: Width; 480 mm (18-15/16")
Height; 153 mm (6-1/16")
Depth; 254 mm (10")
Weight: 3.2 kg (7.1 lbs.) without batteries

● Radio

Frequency range: FM; 87.5 - 108 MHz
AM; 526.5 - 1,606.5 kHz

● Tape recorder

Frequency response: 50 - 14,000 Hz (Normal tape)
Signal/noise ratio: 50 dB
Wow and flitter: 0.3 % (DIN 45 511)
(111H Except for UK/110H)
Wow and flitter: 0.25 % (WRMS)
(111H For UK)
Motor: DC 12 V electric governor
Bias system: AC bias
Erase system: Magnet erase

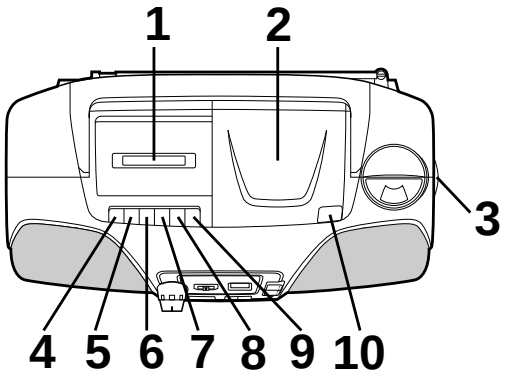
● Compact disc player

Disc: Compact disc
Signal readout: Non-contact, 3-beam semi-conductor laser pickup
Audio channels: 2
Quantization: 16-bit linear quantization
Filter: 4-tims oversampling digital filter
D/A converter: 1-bit D/A converter
Wow and flutter: Unmeasurable (less than 0.001% W. peak)

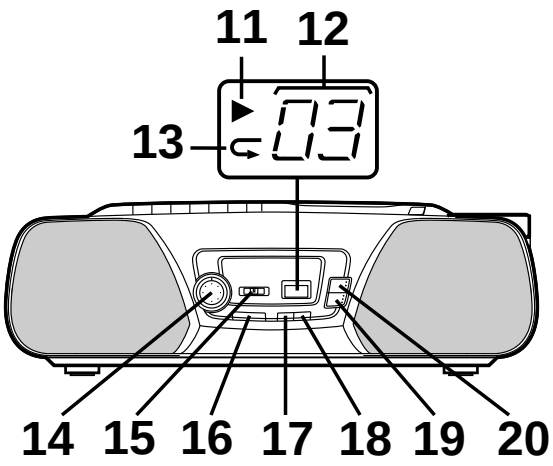
Specifications for this model are subject to change without prior notice.

NAMES OF PARTS

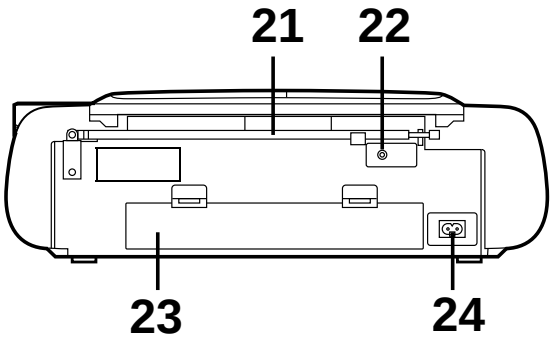
1. Cassette Compartment
2. CD Compartment
3. Tuning Control
4. (TAPE) Record Button: ●
5. (TAPE) Play Button: ▶
6. (TAPE) Rewind Button: ◀◀
7. (TAPE) Fast Forward Button: ▶▶
8. (TAPE) Stop/Eject Button: ■/▲
9. (TAPE) Pause Button: ▮▮
10. CD Eject Button: ▲



11. (CD) Play Indicator: ▶
12. (CD) Track Number Indicator
13. (CD) Repeat Indicator: ⮌
14. Volume Control
15. Stand-by,On/Function Selector Switch
16. Extra Bass Button: X-BASS
17. (CD) Track Down/Review Button: ◀◀/I◀◀
18. (CD) Track Up/Cue Button: ▶▶/▶▶I
19. (CD) Stop Button: ■
20. (CD) Play/Repeat Button: ▶⮌



21. FM Telescopic Rod Aerial
22. Headphones Socket
23. Battery Compartment
24. AC Power Input Socket



DISASSEMBLY

Caution on Disassembly
Follow the below-mentioned notes when disassembling the unit and reassembling it, to keep it safe and ensure excellent performance:

1. Take cassette tape and compact disc out of the unit.
2. Be sure to remove the power supply plug from the wall outlet before starting to disassemble the unit.
3. Take off nylon bands or wire holders where they need be removed when disassembling the unit. After servicing the unit, be sure to rearrange the leads where they were before disassembling.
4. Take suffcient care on static electricity of integrated circuits and other circuits when servicing.

STEP	REMOVAL	PROCEDURE	FIGURE
1	Rear Cabinet	1. Screw ..... (A1) x10 2. Socket ..... (A2) x1	5-1 5-2
2	Top Cabinet (with CD Mechanism/ Tape Mechanism/ Main PWB/ Headphones PWB)	1. Knob ..... (B1) x1 2. Screw ..... (B2) x3 3. Socket ..... (B3) x1	5-2
3	Headphones PWB	1. Screw ..... (C1) x2	5-3
4	Main PWB/ Switch PWB	1. Screw ..... (D1) x6 2. Socket ..... (D2) x4	5-3 5-3,5-4
5	Tape Mechanism	1. Screw ..... (E1) x4	5-4
6	CD Mechanism	1. Screw ..... (F1) x3	5-4
7	Terminal PWB	1. Screw ..... (G1) x5 2. Hook ..... (G2) x1	5-5

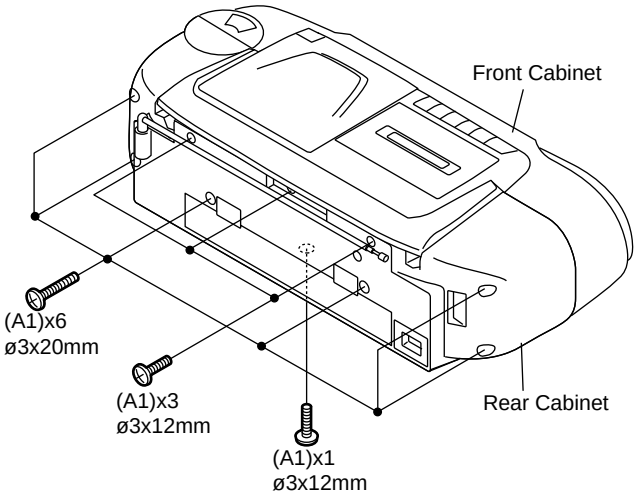


Figure 5-1

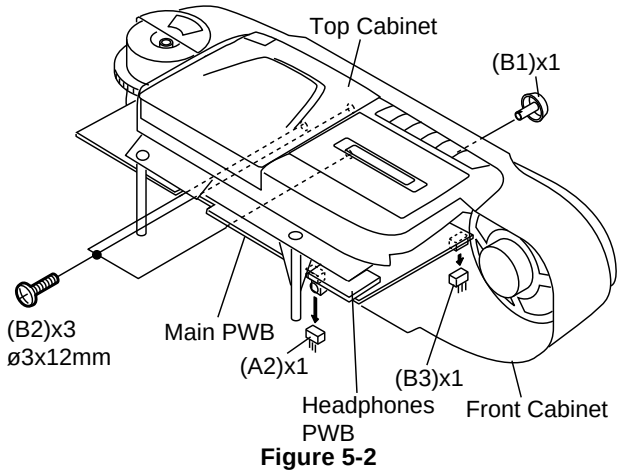


Figure 5-2

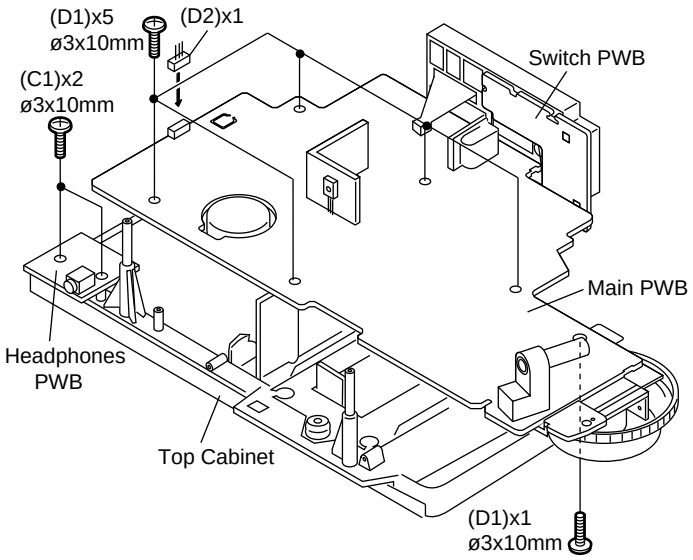


Figure 5-3

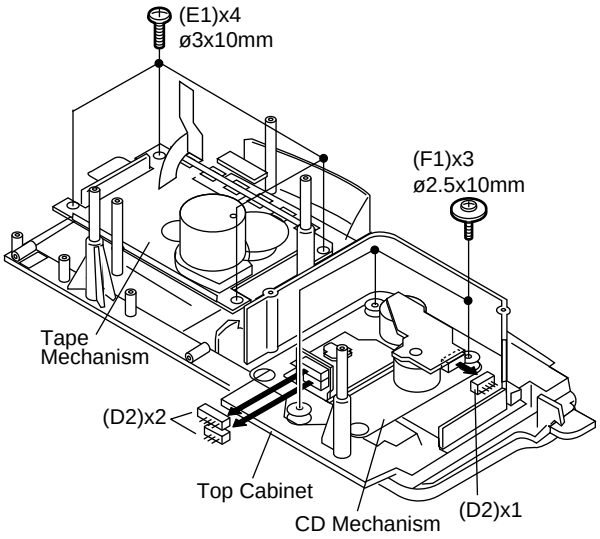


Figure 5-4

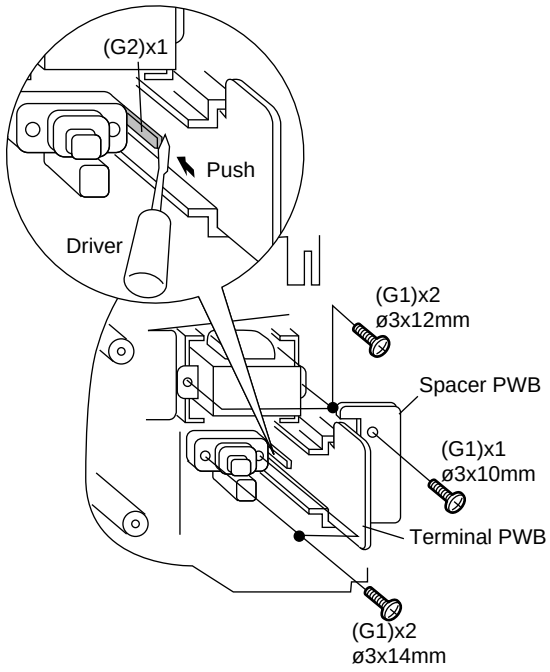


Figure 5-5

REMOVING AND REINSTALLING THE MAIN PARTS

CD MECHANISM SECTION

Perform steps 1, 2, 4 and 6 of the disassembly method to remove the CD mechanism.

How to remove the pickup (See Fig. 6.)

1. Remove the screws (A1) x 2 pcs., to remove the shaft (A2) x1 pc.
2. Remove the stop washer (A3) x1 pc., to remove the gear (A4) x 1 pc.
3. Remove the pickup.

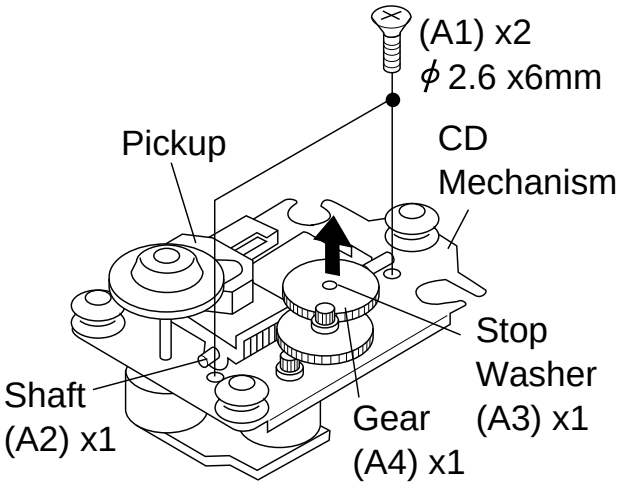


Figure 6

ADJUSTMENT

MECHANISM SECTION

• Driving Force Check

Torque Meter	Specified Value
PLAY: TW-2412	Over 120 g

• Torque Check

Torque Meter	Specified Value
Play: TW-2111	25 to 65 g.cm
Fast Forward: TW-2231	60 to 130 g.cm
Rewind: TW-2231	60 to 130 g.cm

• Head Azimuth

Torque Meter	Specified Value
MTT-114	Output: Speaker Terminal (CNP201 Load resistance: 8 ohms)

• Tape Speed

Test Tape	Adjusting Point	Specified Value	Instrument Connection
MTT-111	In motor	3,000 ± 90 Hz	Output: Speaker Teaminal (CNP201 Load resistance: 8 ohms)

TAPE SECTION

Position of each switch or control	
Volume control Function switch X-BASS	Max Tape/Power Off On

• Bias Oscillation

Adjustment Point	Specified Value	Instrument Connection
L301	82 kHz ± 6 kHz – 6 kHz	Pin 2 of CNP201

• Playback Amplifier Sensitivity Check

Test Tape	Specified Value	Instrument Connection
MTT-118	1.8 V ± 3 dB	Speaker Terminal (Load resistance: 8 ohms)

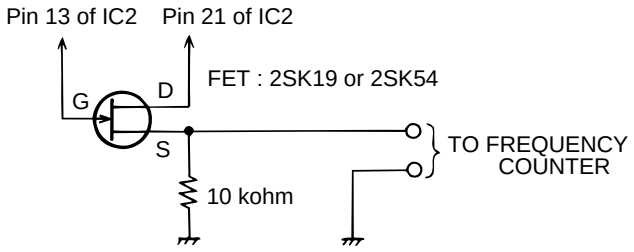


Figure 7-1 VCO FREQUENCY TEST CIRCUIT

TUNER SECTION

fL: Low-range frequency
fH: High-range frequency

• FM IF/RF

Test Stage	Specified Value/Adjusting Point	Instrument Connection
IF	T1	Input: Pin 1 of IC1 Output: Pin 17 of IC2
Detection	T2	
Band Coverage	fL: L2 fH: TC2	Iuput: Antenna Output: Speaker Terminal (CNP201 Load resistance: 8 ohms)
Tracking	88.0 MHz: L1 108.0 MHz: TC1	

• AM IF/RF

Test Stage	Specified Value/Adjusting Point	Instrument Connection
IF	T3	Input: Antenna Output: Pin 19 of IC2
Band Coverage	fL: L4 fH: TC4	Input: Antenna Output: Speaker Terminal (CNP201 Load resistance: 8 ohms)
Tracking	600 kHz: L3 1,400 kHz: TC3	

• VCO Frequency

Adjusting Point	Specified Value	Instrument Connection
VR1	76 kHz ± 200 Hz	Pin 13, pin 21 and ground of IC2

Note:
After preparing the test circuit shown in Fig. 7-1, connect the Pin 13, Pin 21 and ground of the IC2 with the test circuit, and measure the value. At this time, apply a standard unmodulated signal input and adjust the VCO.

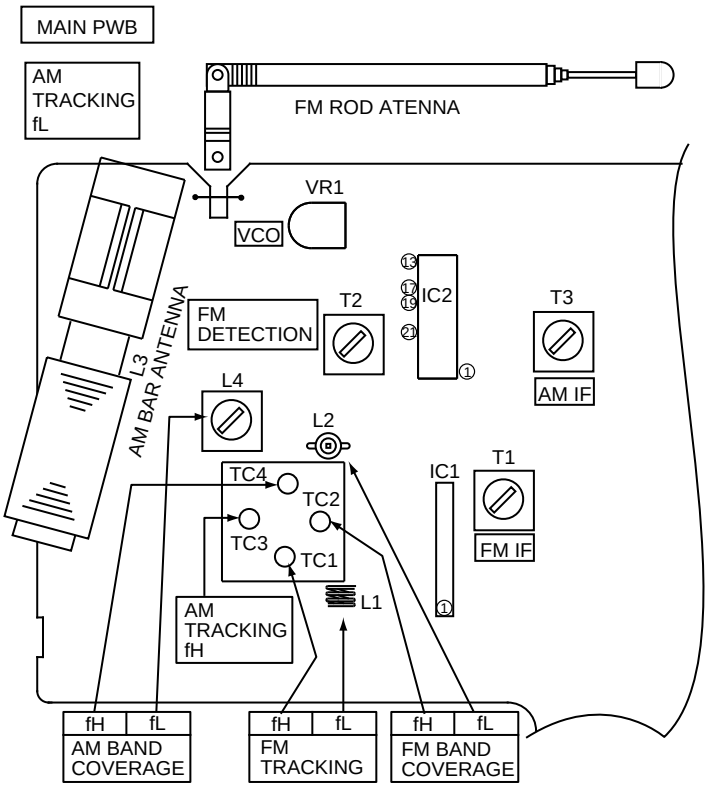


Figure 7-2 ADJUSTMENT POINTS

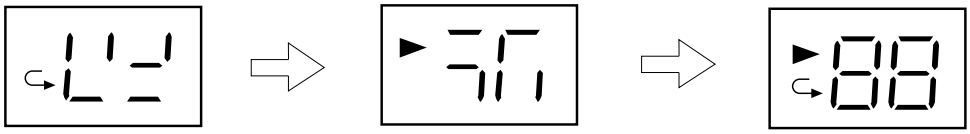
CD SECTION

Since this CD system incorporates the following automatic adjustment function, when the pickup is replaced, it is necessary to reajust it.
Since this CD unit does not need adjustment, the combination of PWB and laser pickup unit is not restricted.

TEST MODE

Start	While holding down the "STOP" button, move the FUNCTION/POWER switch to "CD". Then, release the "STOP" button and, within 0.5 second, connect the TEST POINT to GND (within 0.5 second). (See Fig. 8)	
Note	1. When the CD LID switch is in the OFF position, the unit will be able to enter the test mode. However, playback cannot be performed in this mode. 2. You can only move the pickup. 3. The LCD display should be the same as it is for normal CD operations.	
Operation	1	The use of the "UP/CUE" button will move the pickup to the outermost position. The use of the "DOWN/REVIEW" button will move the pickup to the innermost position.
	2	When the "PLAY" button is pressed, the laser will be lit, and when the "STOP" button is pressed, it will be turned off. Playback will also start and stop when these buttons are pressed.
		a. If the "PLAY" button is pressed while in the stop mode, the laser will simply be turned on at first. b. If the laser is lit and the "PLAY" button is pressed again, playback will start from the current pickup position. c. If the "STOP" button is pressed, playback will stop. When pressed again, the laser will be turned off.
	3	Turning the tracking servo on or off.
		a. Each time the PAUSE button is pressed during playback, the tracking servo will be turned on or off. (Note: If the PLAY button is pressed while in the stop mode, the tracking servo will automatically be turned on.)

LCD MODE

Start	While holding down the "STOP" button, move the FUNCTION/POWER switch to "CD". Then, release the "STOP" button and, within 0.5 second, press the REVIEW/DOWN button.
Display	① ② ③  1 second 1 second * After the number ③ has appeared in the display, each time the "UP/CUE" button is pressed, the display will switch in the following order: ①, ②, and then ③.

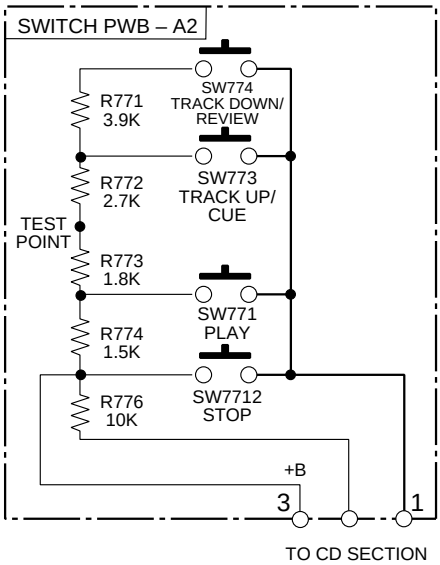


Figure 8

NOTES ON SCHEMATIC DIAGRAM

• Resistor:
To differentiate the units of resistors, the symbol as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000 kohm and the resistor without any symbol is an ohm resistor. The resistor designated "Fusible" is a fuse type resistor

• Capacitor:
To indicate the unit of capacitor, a symbol P is used: this symbol P means micro-micro-farad and the unit of the capacitor without such a symbol is microfarad. As to electrolytic capacitor, the expression “capacitance/withstand voltage” is used.
(CH), (TH), (RH), (UJ): Temperature compensation
(ML): Mylar type
(P.P.): Polypropylene type

• The indicated voltage in each section is the one measured by Digital Multimeter between such a section and the chassis with no signal given.

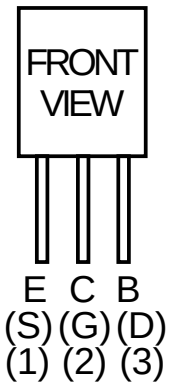
1. Tuner
( ): AM mode
Marking except for ( ): FM mode
2. CD
( ): Play mode
Marking except for ( ): Stop state
3. Deck section
( ): Record mode
Marking except for ( ): Playback mode
Display / Control section:
( ): Active state
Marking except for ( ): CD Function mode at stop state

• Schematic diagram and Wiring Side of P.W.Board for this model are subject to change for improvement without prior notice.

• Parts marked with “ ⚠ ” (⊏ ═ ═ ⊐) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO	DESCRIPTION	POSITION
SW102	RECODE/PLAYBACK	OFF—ON
SW201	FUNCTION/POWER	TAPE—AM—FM AUTO—CD/OFF—ON
SW203	X-BASS	OFF—ON
SW601	TAPE MAIN	OFF—ON
SW702	PICKUP IN	OFF—ON

REF. NO	DESCRIPTION	POSITION
SW761	CD LID OPEN/CLOSE	OFF—ON
SW771	PLAY/REPEAT	OFF—ON
SW772	STOP	OFF—ON
SW773	TRACK UP/CUE	OFF—ON
SW774	TRACK DOWN/REVIEW	OFF—ON



2SC1815 GR

Figure 9 TYPES OF TRANSISTOR

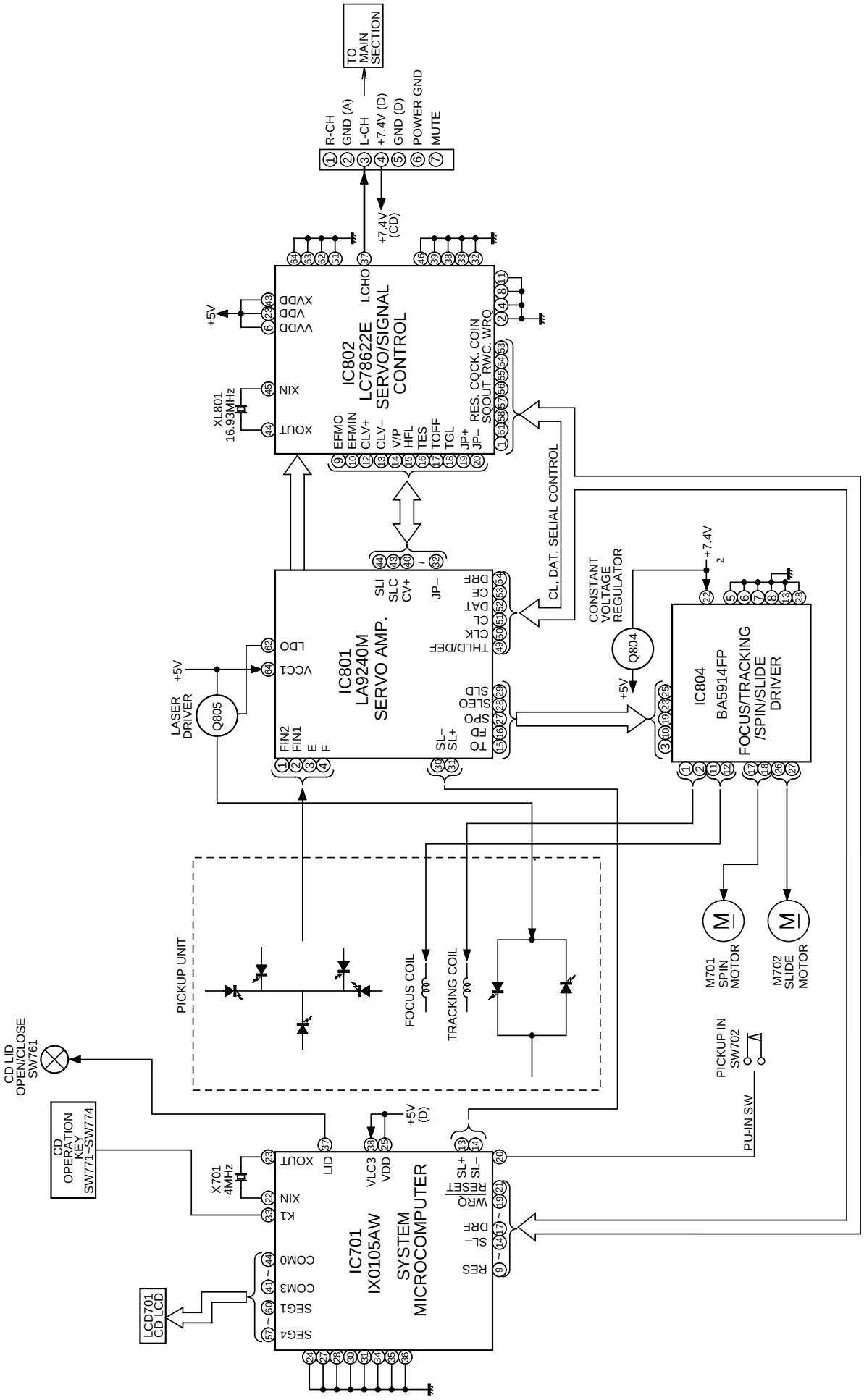


Figure 10 BLOCK DIAGRAM (1/2)

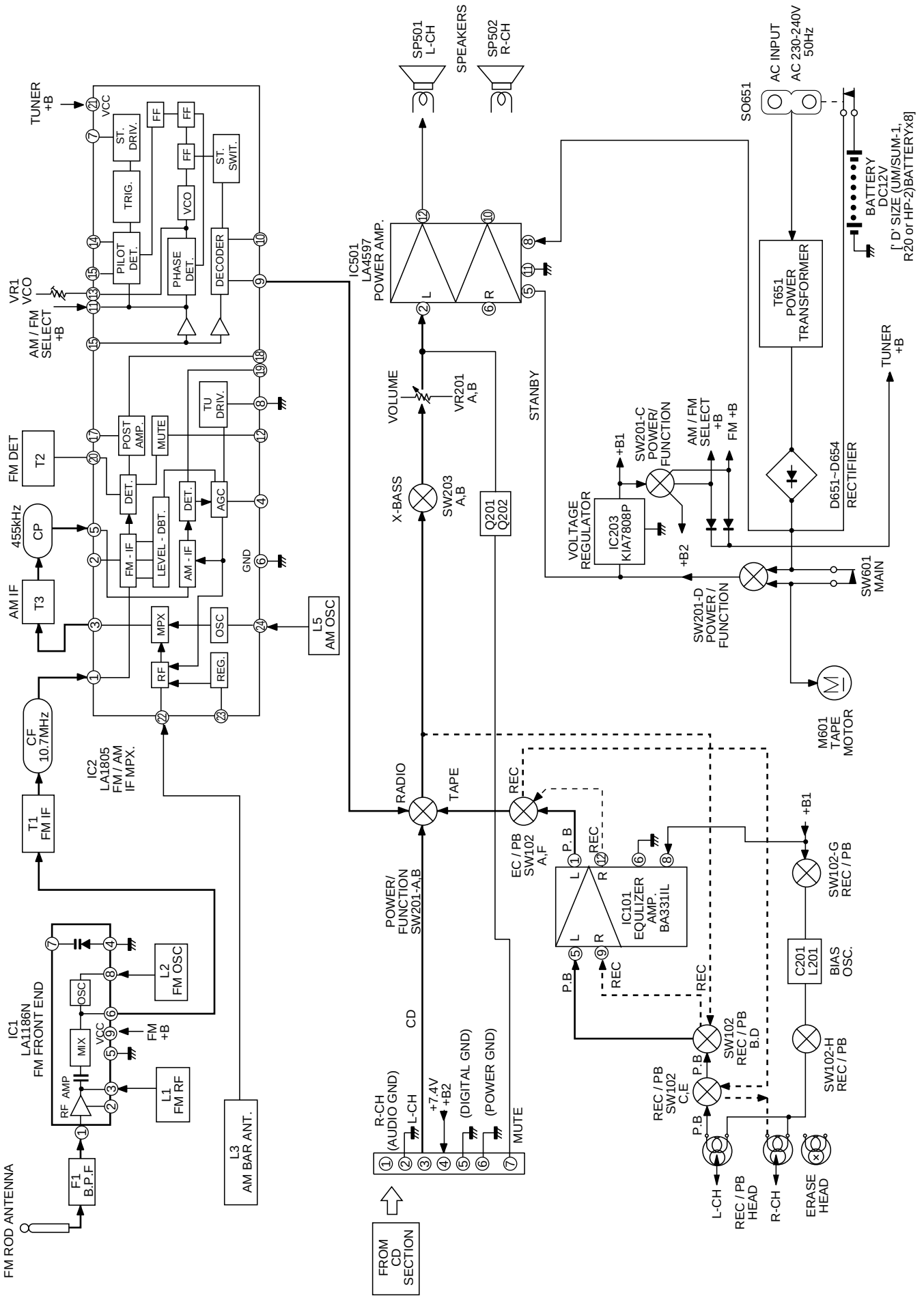
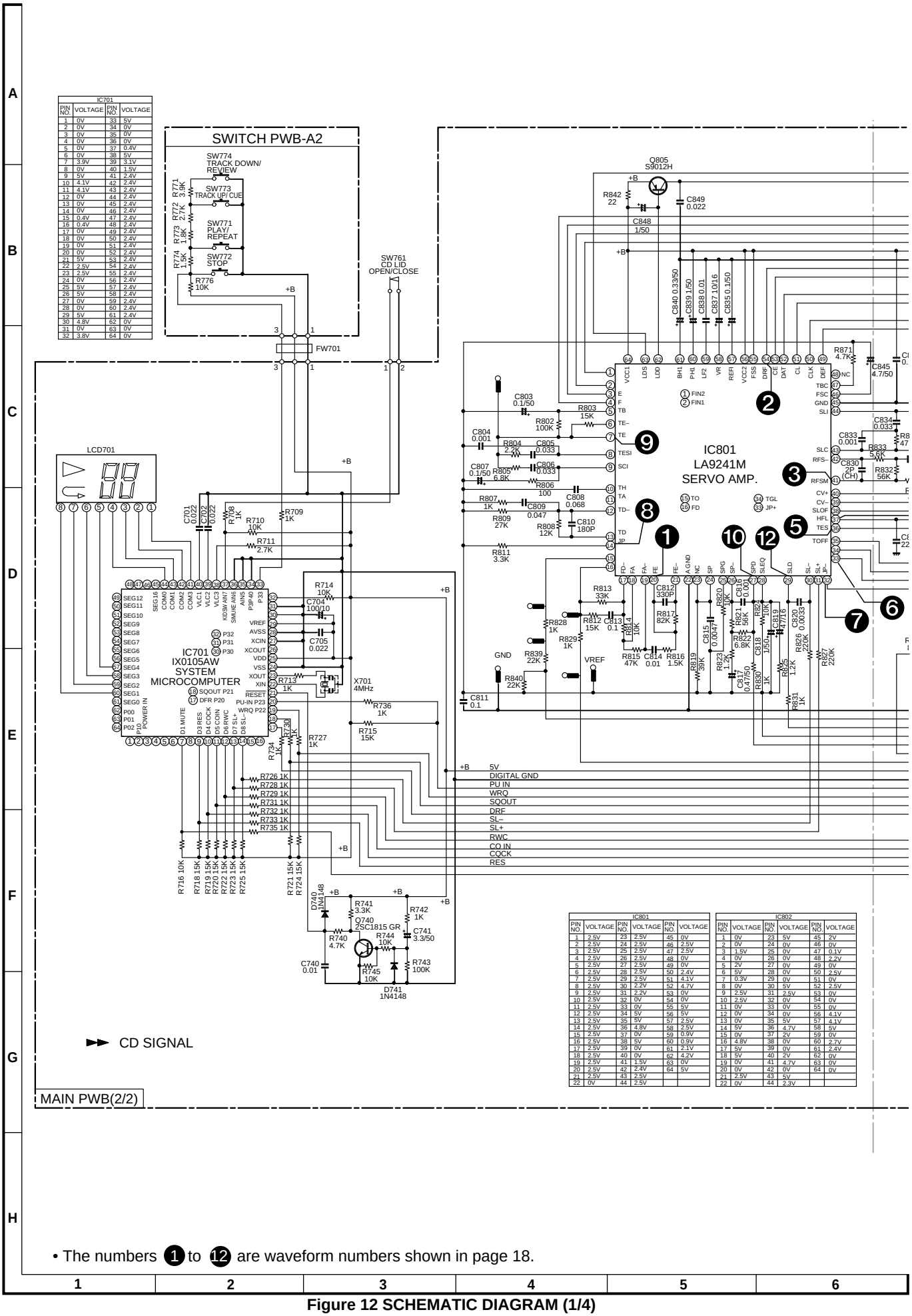


Figure 11 BLOCK DIAGRAM (2/2)



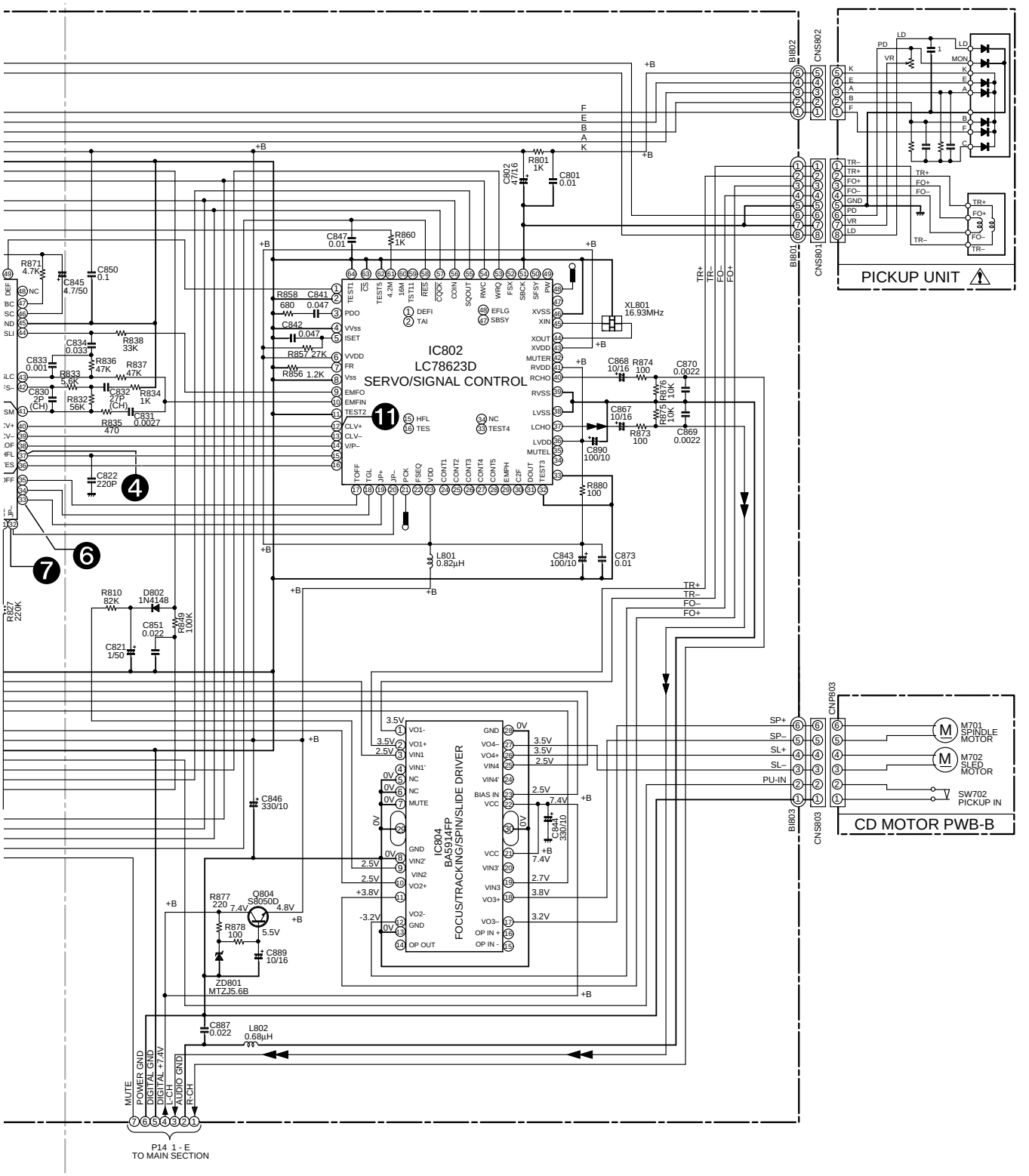
IC701			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0V	33	5V
2	0V	34	0V
3	0V	35	0V
4	0V	36	0V
5	0V	37	0.4V
6	0V	38	5V
7	3.9V	39	3.1V
8	0V	40	1.5V
9	5V	41	2.4V
10	4.1V	42	2.4V
11	4.1V	43	2.4V
12	0V	44	2.4V
13	0V	45	2.4V
14	0V	46	2.4V
15	0.4V	47	2.4V
16	0.4V	48	2.4V
17	0V	49	2.4V
18	0V	50	2.4V
19	0V	51	2.4V
20	0V	52	2.4V
21	5V	53	2.4V
22	2.5V	54	2.4V
23	2.5V	55	2.4V
24	0V	56	2.4V
25	5V	57	2.4V
26	5V	58	2.4V
27	0V	59	2.4V
28	0V	60	2.4V
29	5V	61	2.4V
30	4.8V	62	0V
31	0V	63	0V
32	3.8V	64	0V

IC801					
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.5V	23	2.5V	45	0V
2	2.5V	24	2.5V	46	2.5V
3	2.5V	25	2.5V	47	2.5V
4	2.5V	26	2.5V	48	0V
5	2.5V	27	2.5V	49	0V
6	2.5V	28	2.5V	50	2.4V
7	2.5V	29	2.5V	51	4.1V
8	2.5V	30	2.2V	52	4.7V
9	2.5V	31	2.2V	53	0V
10	2.5V	32	0V	54	0V
11	2.5V	33	0V	55	5V
12	2.5V	34	5V	56	5V
13	2.5V	35	5V	57	2.5V
14	2.5V	36	4.8V	58	2.5V
15	2.5V	37	0V	59	0.9V
16	2.5V	38	5V	60	0.9V
17	2.5V	39	0V	61	2.1V
18	2.5V	40	0V	62	4.2V
19	2.5V	41	1.5V	63	0V
20	2.5V	42	2.4V	64	5V
21	2.5V	43	2.5V		
22	0V	44	2.5V		

IC802					
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0V	23	5V	45	2V
2	0V	24	0V	46	0V
3	1.5V	25	0V	47	0.1V
4	0V	26	0V	48	2.2V
5	2V	27	0V	49	0V
6	5V	28	0V	50	2.5V
7	0.3V	29	0V	51	0V
8	0V	30	5V	52	2.5V
9	2.5V	31	2.5V	53	0V
10	2.5V	32	0V	54	0V
11	0V	33	0V	55	0V
12	0V	34	0V	56	4.1V
13	0V	35	5V	57	4.1V
14	5V	36	4.7V	58	5V
15	0V	37	2V	59	0V
16	4.8V	38	0V	60	2.7V
17	5V	39	0V	61	2.4V
18	5V	40	2V	62	0V
19	0V	41	4.7V	63	0V
20	0V	42	0V	64	0V
21	2.5V	43	5V		
22	0V	44	2.3V		

• The numbers ❶ to ⓬ are waveform numbers shown in page 18.

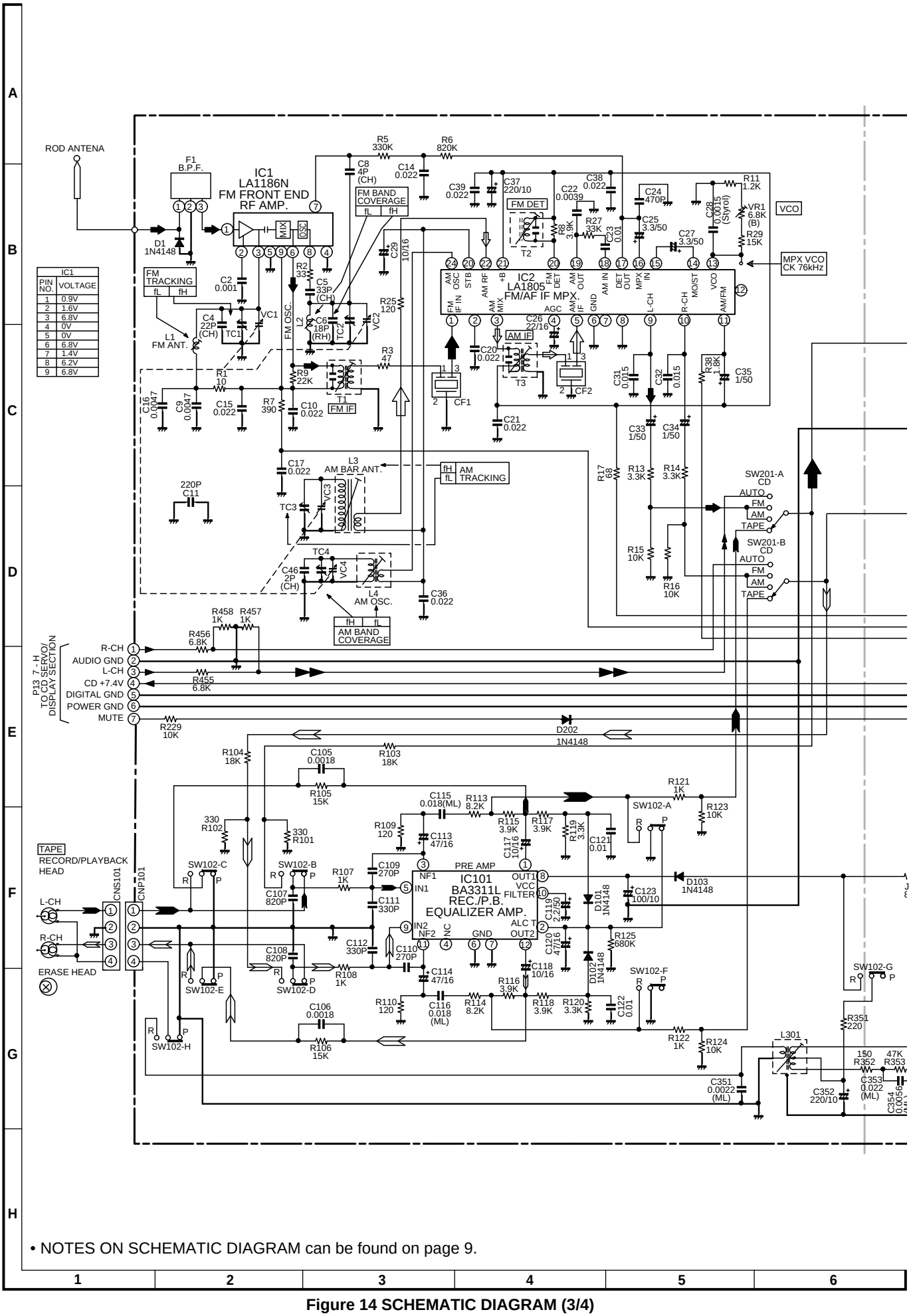
Figure 12 SCHEMATIC DIAGRAM (1/4)



• NOTES ON SCHEMATIC DIAGRAM can be found on page 9.

7	8	9	10	11	12

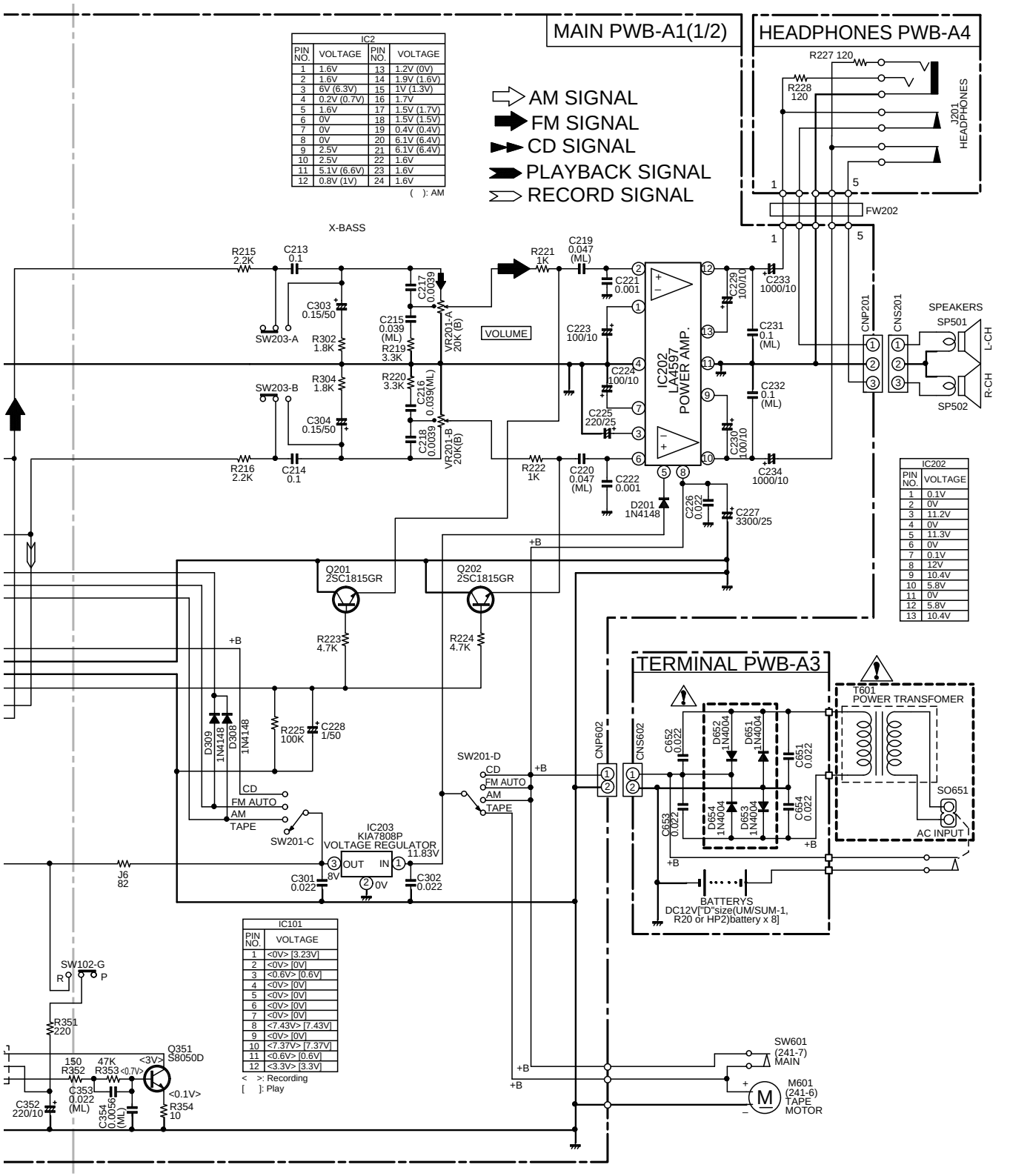
Figure 13 SCHEMATIC DIAGRAM (2/4)



IC1	
PIN NO.	VOLTAGE
1	0.9V
2	1.6V
3	6.8V
4	0V
5	0V
6	6.8V
7	1.4V
8	6.2V
9	6.8V

• NOTES ON SCHEMATIC DIAGRAM can be found on page 9.

Figure 14 SCHEMATIC DIAGRAM (3/4)



IC2

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	1.6V	13	1.2V (0V)
2	1.6V	14	1.9V (1.6V)
3	6V (6.3V)	15	1V (1.3V)
4	0.2V (0.7V)	16	1.7V
5	1.6V	17	1.5V (1.7V)
6	0V	18	1.5V (1.5V)
7	0V	19	0.4V (0.4V)
8	0V	20	6.1V (6.4V)
9	2.5V	21	6.1V (6.4V)
10	2.5V	22	1.6V
11	5.1V (6.6V)	23	1.6V
12	0.8V (1V)	24	1.6V

( ): AM

IC202

PIN NO.	VOLTAGE
1	0.1V
2	0V
3	11.2V
4	0V
5	11.3V
6	0V
7	0.1V
8	12V
9	10.4V
10	5.8V
11	0V
12	5.8V
13	10.4V

IC101

PIN NO.	VOLTAGE
1	<0V> [3.23V]
2	<0V> [0V]
3	<0.6V> [0.6V]
4	<0V> [0V]
5	<0V> [0V]
6	<0V> [0V]
7	<0V> [0V]
8	<7.43V> [7.43V]
9	<0V> [0V]
10	<7.37V> [7.37V]
11	<0.6V> [0.6V]
12	<3.3V> [3.3V]

< >: Recording
[ ]: Play

7	8	9	10	11	12

Figure 15 SCHEMATIC DIAGRAM (4/4)

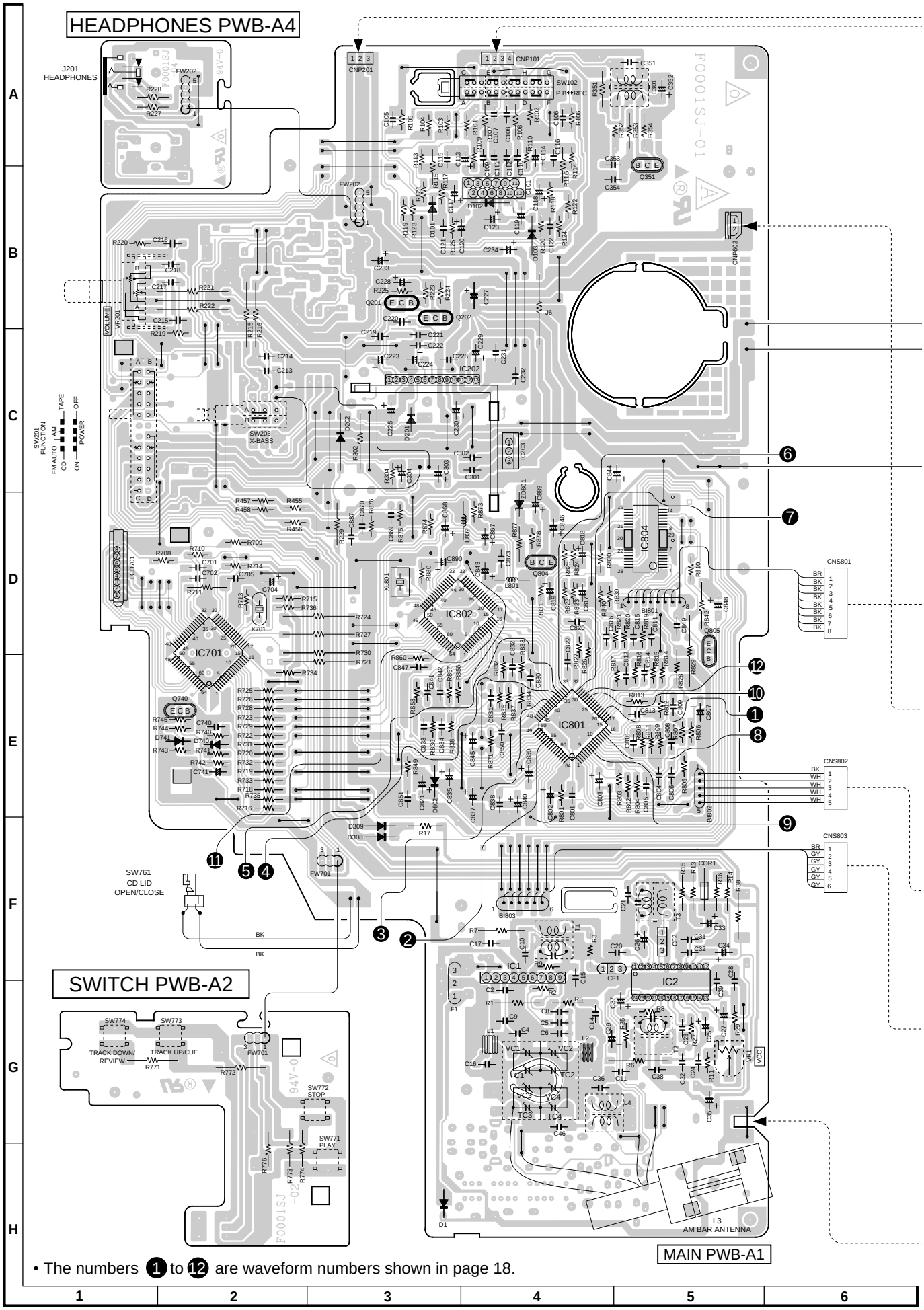
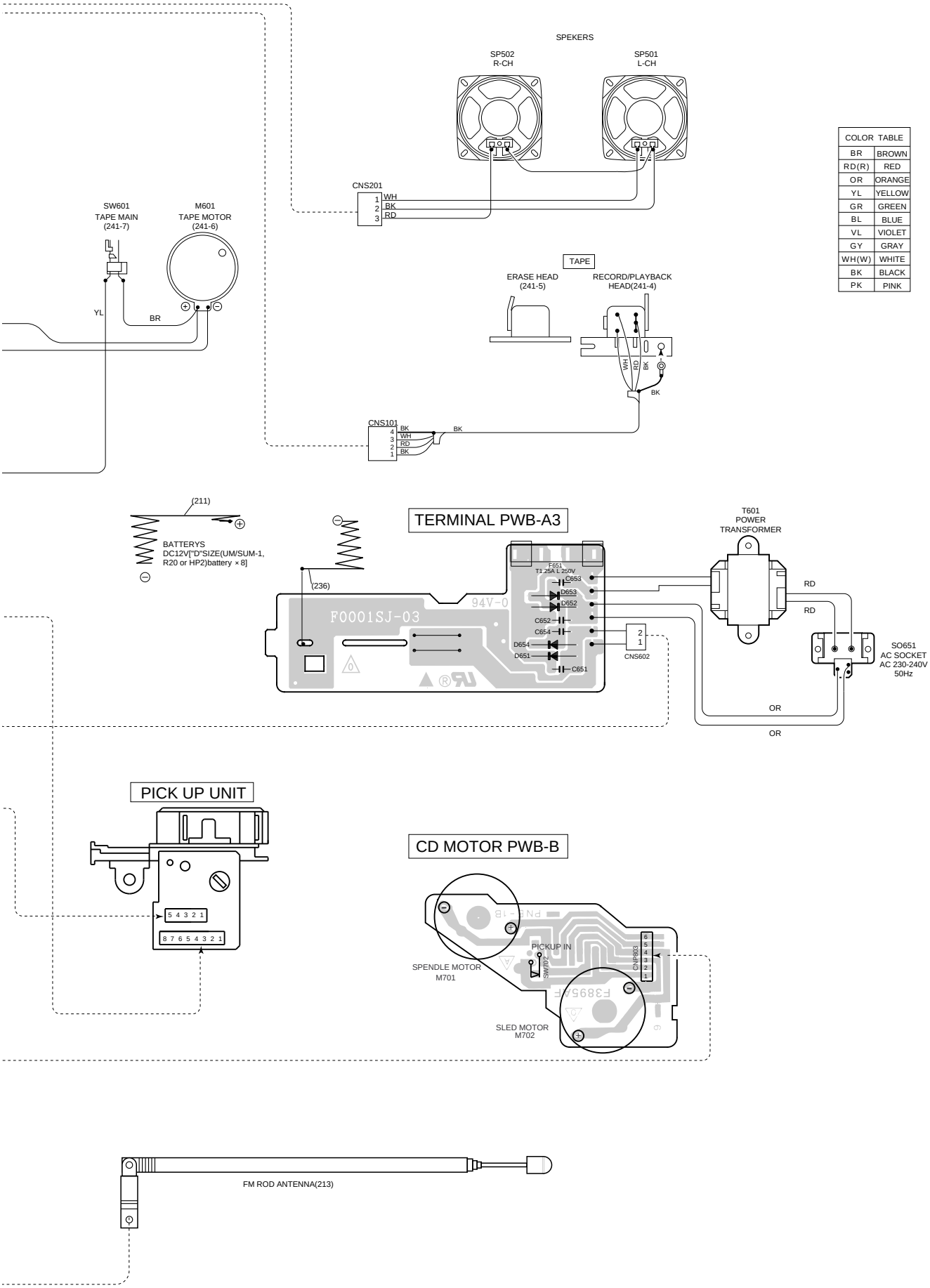


Figure 16 WIRING OF P.W.BOARD (1/2)



7	8	9	10	11	12

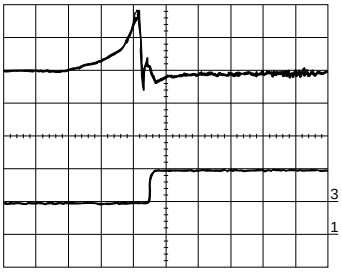
Figure 17 WIRING OF P.W.BOARD (2/2)

WAVEFORMS OF CD CIRCUIT

1 5ms 0.50 V IC801 (20) F.E

2 5ms 5.0 V IC801 (54) DRF

STOP → PLAY
FOCUS — SERCH

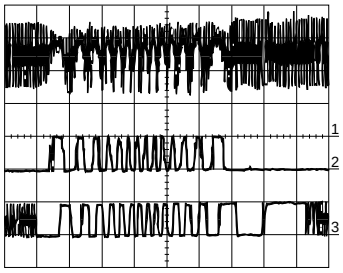


3 0.5ms 1.00 V HF

4 0.5ms 5.0 V HFL

5 0.5ms 5.0 V TES

CUE

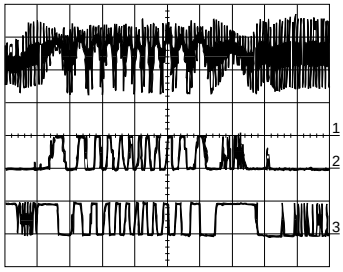


3 0.5ms 1.00 V H.F

4 0.5ms 5.0 V HFL

5 0.5ms 5.0 V TES

REVIEW



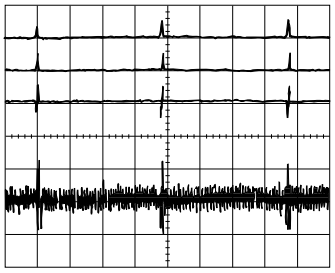
6 50ms 10.0 V JP+

7 50ms 10.0 V JP-

8 50ms 0.50 V JP

9 50ms 1.00 V TE

CUE

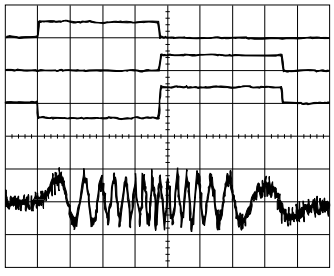


6 50ms 10.0 V JP+

7 50ms 10.0 V JP-

8 50ms 0.50 V JP

9 50ms 1.00 V TE



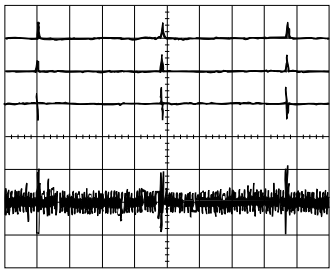
6 50ms 10.0 V JP+

7 50ms 10.0 V JP-

8 50ms 0.50 V JP

9 50ms 1.00 V TE

REVIEW

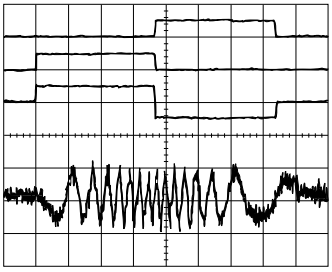


6 0.5ms 10.0 V JP+

7 0.5ms 10.0 V JP-

8 0.5ms 0.50 V JP

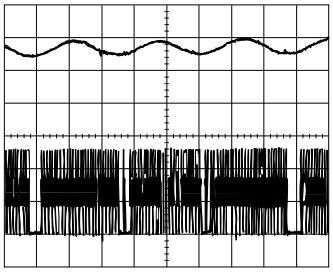
9 0.5ms 1.00 V TE



10 20ms 1.00 V SPO

11 20ms 2.00 V CLV+

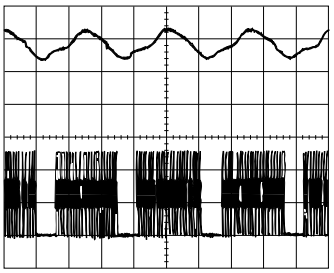
PLAY
NORMAL DISC
TN0=01



10 50ms 1.00 V SPO

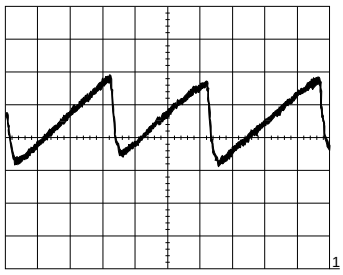
11 50ms 2.00 V CLV+

PLAY
TCD-712 (140mm)
TN0=01

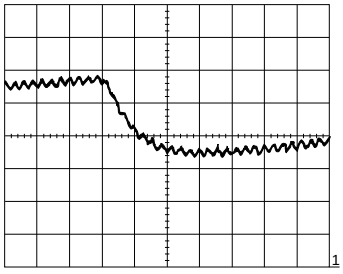


12 5s 100mV SLD

PLAY
TCD-712



12 0.5s 100mV SLD



TROUBLESHOOTING (CD SECTION)

When the CD does not function

When the CD section does not operate When the objective lens of the optical pickup is dirty,this section may not operate.Clean the objective lens,and check the playback operation.When this section does not operate even after the above step is taken,check the following items.
Remove the cabinet and follow the troubleshooting instructions.
"Track skipping and/or no TOC(Table Of Contents) may be caused by build up of dust other foreign matter on the laser pickup lens. Before attempting any adjustment make certain that the lens is clean. If not, clean it as mentioned below."

Turn the power off.
Gently clean the lens with a lens cleaning tissue and a small amount of isopropyl alcohol.
Do not touch the lens with the bare hand.

• The CD function will not work.

The CD operating keys don't work.

↓ Yes

Check the CD, DPS microcomputer (IC701), power supply, 4.19 MHz and 16.93 MHz clock, and reset terminal.

↓ Yes

Check the waveform of SCK, SO (DATA) and SI (COMM).

↓ Yes

See if the pick-up is in the pick-up in SW702 position.

↓ Yes

If the items mentioned above are OK, check the main microcomputer IC701.

• The CD operating keys work.

Check the Focus - HF system.

Playback can be performed without a disc.

↓ Yes

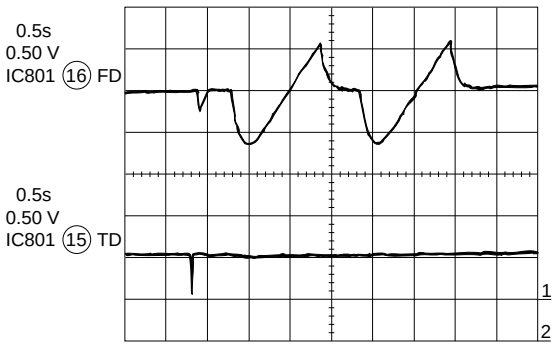
Does the pick-up move up and down twice? → Yes → Focus search OK.

↓ No

Does the output waveform of IC801(16)(FD) match that shown in Fig. 19? → Yes → Check the area around IC804-BI801/CNS801.

↓ No

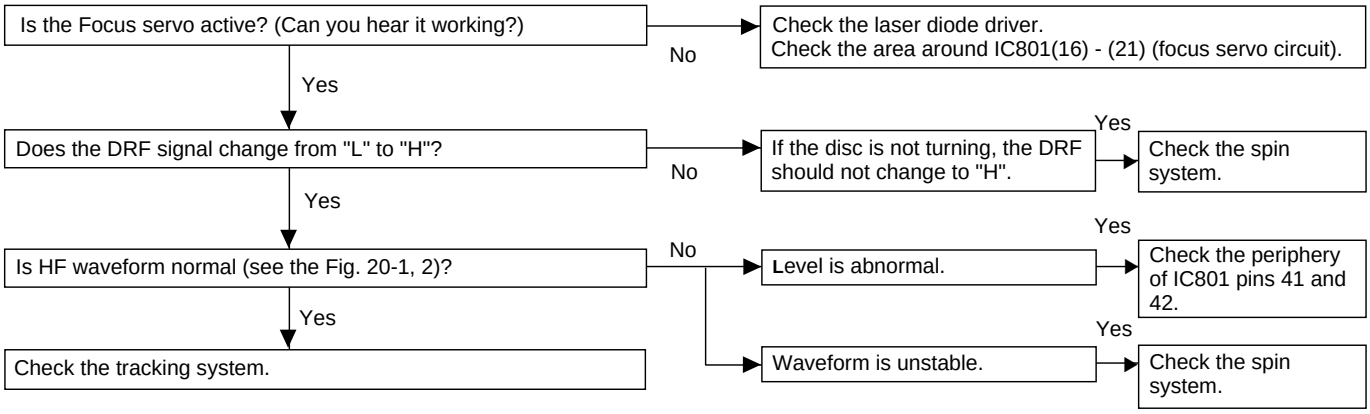
Check the IC801(50)(CLK) line, 4MHz.
Check the microcomputer data on pins (51)(CL), (52)(DAT) and (53)CE.



Focus search is performed two times when play operation is done without disc.

Figure 19

• Playback can only be performed when a disc is loaded.


Is the Focus servo active? (Can you hear it working?)
No
Check the laser diode driver.
Check the area around IC801(16) - (21) (focus servo circuit).
Yes
Does the DRF signal change from "L" to "H"?
No
If the disc is not turning, the DRF should not change to "H".
Yes
Check the spin system.
Yes
Is HF waveform normal (see the Fig. 20-1, 2)?
No
Level is abnormal.
Yes
Check the periphery of IC801 pins 41 and 42.
Yes
Check the tracking system.
Waveform is unstable.
Yes
Check the spin system.

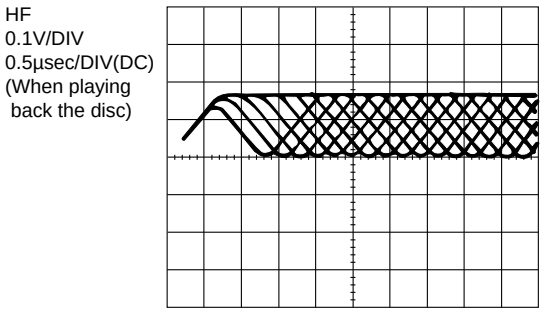
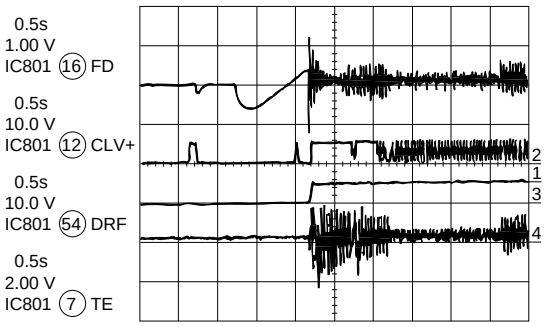


Figure 20-1



Waveform in case of normal play-back

Figure 20-2

• Check the tracking system.

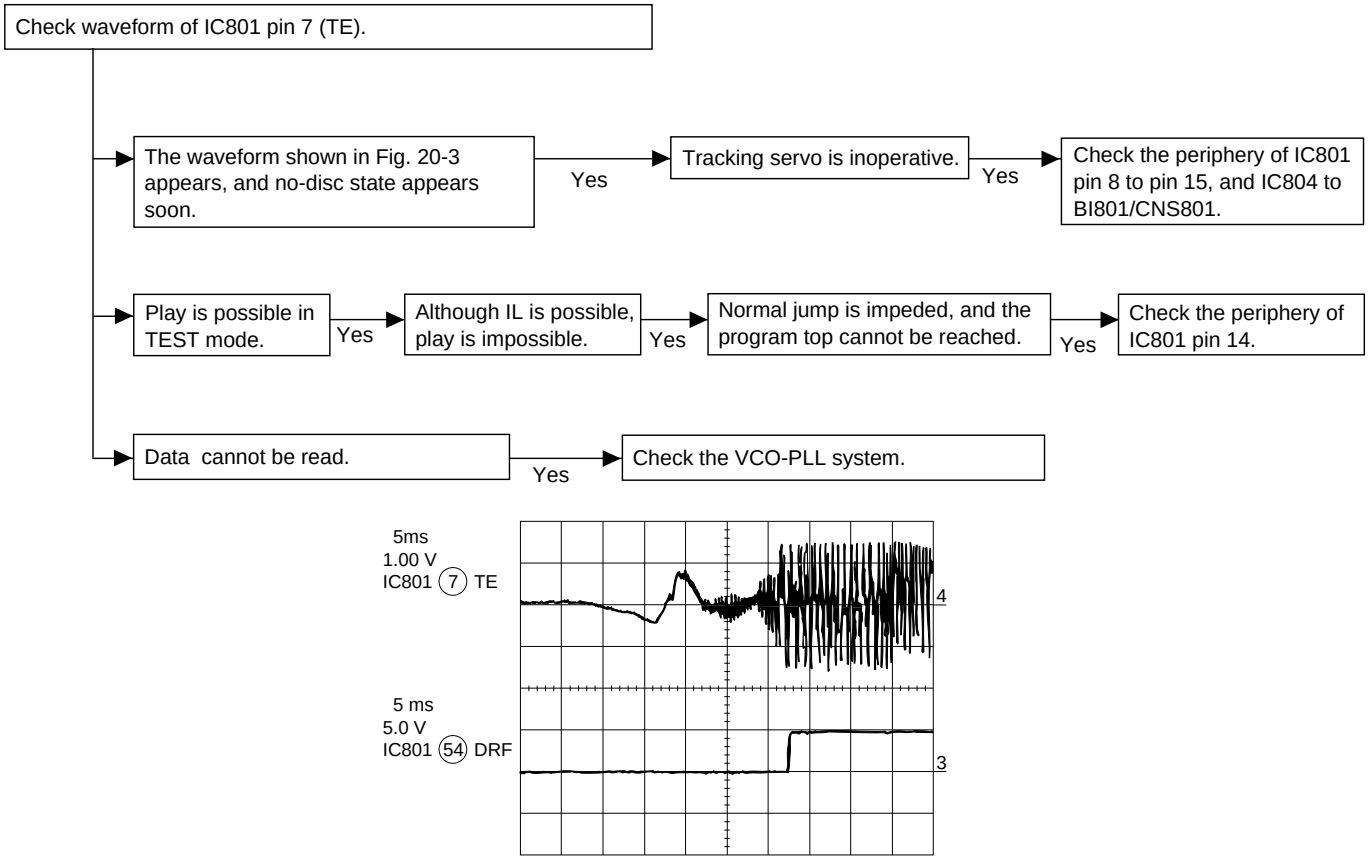

Check waveform of IC801 pin 7 (TE).
The waveform shown in Fig. 20-3 appears, and no-disc state appears soon.
Yes
Tracking servo is inoperative.
Yes
Check the periphery of IC801 pin 8 to pin 15, and IC804 to BI801/CNS801.
Play is possible in TEST mode.
Yes
Although IL is possible, play is impossible.
Yes
Normal jump is impeded, and the program top cannot be reached.
Yes
Check the periphery of IC801 pin 14.
Data cannot be read.
Yes
Check the VCO-PLL system.

Figure 20-3

• Checking the spin system.

Play operation is performed without disc.

Yes

The turntable rotates a little. → Yes → The spin driver circuit is normal.

No

The turntable fails to rotate or rotates at high speed. → Yes → Check the periphery of IC801 pins 23 to 27, pin 39 and pin 40, IC802 pin 12 and pin 13, IC804 to BI803/CNS803.

• Checking the VCO-PLL system

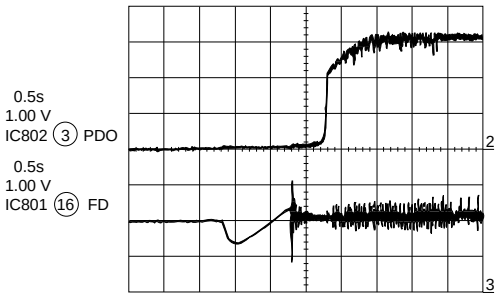
Play operation is performed when disc exits.

Yes

Although HF waveform is normal, TOC data cannot be read. → Yes → Check PDO waveform (Fig. 21).

Error

Check the IC801 pins 43 and 44, IC802 pins 3, 5, 7, 9 and 10.



Stop --> Play
As VCO frequency is locked at 4.32 M Hz, voltage of PDO rises and stabilizes.

Figure 21

• Although HF waveform is normal and the time indication is normal, no sound is emitted.

Check IC802 pin 48 (EFLG). → No → Usually, the number of pulses of flawless disc is 100 pulses/sec or less.

Yes

Check IC802 pins 37and 40.

Abnomal

Check the periphery of IC803 (OPAMP).

FUNCTION TABLE OF IC

IC701 RH-iX0105AWZZ (IX0105AW): System Control Microcomputer

Pin No.	Terminal Name	Port Name	Input/ Output	Function
1*	P03	MTCONT2	Input/Output	Used to input or output 4 bits at a time. When the output latch is set to "1", the unit will be in the input mode. The key-on wakeup function, which can be switched on or off by the software, and a pull-up transistor, which can be turned on or off by the software, are built in.
2*-5*	P10-P13	POWER-IN, DATA (VOL), STB (VOL)	Input/Output	Used to input or output 4 bits at a time. When the output latch is set to "1", the unit will be in the input CK (VOL), mode.The key-on wakeup function, which can be switched on or off by the software, and a pull-up transistor,which can be turned on or off by the software, are built in.
6*	D0	POWER-ON	Input/Output	Each terminal can be used to input or output 1 bit at a time. The output section has a latch which holds 1 bit. One of the D ports is assigned by register Y as a data point, to execute input or output. To use the port for input, set the output latch for that bit to "1". All of the output latches on port D can be set to "1" using the CLD command.
7	D1	MUTE	Input/Output	Each terminal can be used to input or output 1 bit at a time. The output section has a latch which holds 1 bit. One of the D ports is assigned by register Y as a data point, to execute input or output. To use the port for input, set the output latch for that bit to "1". All of the output latches on port D can be set to "1" using the CLD command.
8*-12	D2-D6	SYNC-OUT, RES,CQCK, COIN,REC	Input/Output	Each terminal can be used to input or output 1 bit at a time. The output section has a latch which holds 1 bit. One of the D ports is assigned by register Y as a data point, to execute input or output. To use the port for input, set the output latch for that bit to "1". All of the output latches on port D can be set to "1" using the CLD command.
13,14	D7,D8	SL+,SL-	Input/Output	Each terminal can be used to input or output 1 bit at a time. The output section has a latch which holds 1 bit. One of the D ports is assigned by register Y as a data point, to execute input or output. To use the port for input, set the output latch for that bit to "1". All of the output latches on port D can be set to "1" using the CLD command.
15*,16*	D9,D10	SRS2,SRS1	Input/Output	Each terminal can be used to input or output 1 bit at a time. The output section has a latch which holds 1 bit. One of the D ports is assigned by register Y as a data point, to execute input or output. To use the port for input, set the output latch for that bit to "1". All of the output latches on port D can be set to "1" using the CLD command.
17	P20	DRF	Input/Output	Used to receive 4 bits at a time.
18	P21	SQOUT	Input/Output	Used to receive 4 bits at a time.
19	P22	WRQ	Input/Output	Used to receive 4 bits at a time.
20	P23	PU-IN	Input/Output	Used to receive 4 bits at a time.
21	$\overline{\text{RESET}}$		Input/Output	Reset pulse input/output terminal. When a reset is caused by the watch dog timer, an "L" level will be output. The output is an N channel open drain.
22	XIN		Input	Input/output terminals for the main clock generation circuit. Used by connecting a ceramic resonator between the XIN and XOUT terminals. There is a built-in feedback resistor between the XIN and XOUT terminals.
23	XOUT		Output	Input/output terminals for the main clock generation circuit. Used by connecting a ceramic resonator between the XIN and XOUT terminals. There is a built-in feedback resistor between the XIN and XOUT terminals.
24	VSS		—	GND input terminal.
25	VDD		—	Positive power supply terminal.
26*	XCOUT		Output	Input/output terminals for the sub clock generation circuit. Used by connecting a crystal oscillator between the XCIN and XCOUT terminals. There is a built-in feedback resistor between the XCIN and XCOUT terminals.
27	XCIN		Input	Input/output terminals for the sub clock generation circuit. Used by connecting a crystal oscillator between the XCIN and XCOUT terminals. There is a built-in feedback resistor between the XCIN and XCOUT terminals.
28	AVSS		Input	GND input terminal for the A-D converter.
29	VREF		Input	Reference voltage input terminal for the A-D converter.
30	P30	REMOCONINT2	Input	Used to receive 4 bits at a time.
31	P31	TORAY1	Input	Used to receive 4 bits at a time.
32	P32	TORAY2	Input	Used to receive 4 bits at a time.
33	P33		Input	Used to receive 4 bits at a time.
34	P40		Input	Used to receive 4 bits at a time.
35-37	AIN5-AIN7		Input	Used to receive 4 bits at a time.
38-40	VLC3-VLC1		Input	LCD power input terminals. To use the internal resistor, connect VLC3 to VDD (if a brightness control is needed, connect VLC3 to VDD through a resistor). When an external power supply is used, applyvoltages as follows: 0<VLC1<VLC3<VLCD<VDD.
41-44	COM3-COM0		Output	LCD common output terminals.
45-61* (45*-56*)	SEG16-SEG0		Output	LCD segment output terminals.
62*-64*	P00-P02		Input/Output	Used to input or output 4 bits at a time. When the output latch is set to "1", the unit will be in the input mode. The key-on wakeup function, which can be switched on or off by the software, and a pull-up transistor, which can be turned on or off by the software, are built in.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

PACKING METHOD (111H FOR UK ONLY)

• Setting position of switches and knobs

Tape Mechanism Control	STOP STATE
TUNING	LOW
POWER/FUNCTION	OFF/TAPE
X-BASS	OFF
VOLUME	LOW

1. AC Power Supply Cord	QACCB0001SJ00
2. Polyethylene Bag, Unit	SSAKH0001SJZZ
3. Packing Add., Left/Right	SPAKA0001SJZZ
4. Packing Case	SPAKC0005SJZZ
5. Operation Manual	TiNSE0002SJZZ
6. Polyethylene Bag, AC Power Supply Cord	SSAKK0002SJZZ
7. Warranty Card	TCADN0001SJZZ
8. Feature Label	TLABE0004SJZZ
9. Label, Bar Code	TLABE0001SJZZ
10. Polyethylene Bag, Accessories	SSAKK0001SJZZ